

ABSTRACT OF THE DISCLOSURE

Apparatus and methods are disclosed for aligning components of an ion optics system particularly as applied to mass spectroscopy apparatus. An apparatus comprises a base having a front face, a rear face and at least one side face, and at least two supports. Each of the supports has at least one face. Each of the supports is affixed to the base by alignment of a portion of at least one face of the base and a portion of at least one face of the support thereby resulting in the alignment of the supports relative to one another. At least one of the supports has attached thereto a component of an ion optics system for a mass spectrometer. In a mass spectroscopy apparatus the support mating faces and the base mating faces are configured and dimensioned such that, when the support mating faces are brought together in registration with the respective base mating faces, the components are optically aligned within acceptable tolerances. Also disclosed are apparatus for making electrical in high vacuum environments. An apparatus has at least one groove therein. An electrical lead is sequestered in the groove and the apparatus further comprises a shielding plate covering the groove.